

CLAIMS

What is claimed is:

1. An optical encoder comprising:
an optical grating including alternating light areas and dark areas for modulating a beam of light;
a sensor for sensing modulated light provided by the optical grating;
the optical grating and the sensor being movable relative to each other;
wherein the optical grating includes a first plurality of contiguously adjacent light areas and a plurality of second light areas, wherein the contiguously adjacent first light areas and the second light areas are substantially uniformly spaced and wherein the contiguously adjacent first light areas are optically configured to change an amplitude of an output of the sensor.
2. The optical encoder of claim 1 wherein the dark areas are of substantially identical width.
3. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are shorter than the second light areas.
4. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are shorter than the second light areas and are of gradually changing height.

5. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are taller than the second light areas.

6. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are taller than the second light areas and are of gradually changing height.

7. The optical encoder of claim 1 wherein the second light areas are of substantially identical lightness.

8. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are darker than the second light areas.

9. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are lighter than the second light areas.

10. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are less transmissive than the second light areas.

11. The optical encoder of claim 1 wherein the contiguously adjacent first light areas are more transmissive than the second light areas.

12. The optical encoder of claim 1 wherein the light areas include non-linear sides.

13. The optical encoder of claim 1 wherein the plurality of second light areas are disposed on both sides of the contiguously adjacent first light areas.

14. An optical encoder comprising:
an optical grating including alternating light areas and dark areas for modulating a beam of light, wherein the dark areas include non-linear sides;
a sensor for sensing modulated light provided by the optical grating;
the optical grating and the sensor being movable relative to each other; and
wherein the optical grating includes a first plurality of contiguously adjacent light areas and a plurality of second light areas, wherein the contiguously adjacent first light areas and the second light areas are substantially uniformly spaced and wherein the contiguously adjacent first light areas are transmissively different from the second light areas.

15. The optical encoder of claim 14 wherein the dark areas are of substantially identical width.

16. The optical encoder of claim 14 wherein the second light areas are of substantially identical lightness.

17. The optical encoder of claim 14 wherein the contiguously adjacent first light areas are darker than the second light areas.

18. The optical encoder of claim 14 wherein the contiguously adjacent first light areas are lighter than the second light areas.

19. The optical encoder of claim 14 wherein the contiguously adjacent first light areas are less transmissive than the second light areas.

20. The optical encoder of claim 14 wherein the contiguously adjacent first light areas are more transmissive than the second light areas.

21. A position encoder comprising:
an optical track for providing a pattern of alternating light and dark areas, wherein the light areas are substantially uniformly spaced and optically encoded to define a predetermined position; and
a quadrature sensor for detecting the pattern of alternating light and dark areas.

22. A position encoder comprising:
means for providing a pattern of alternating light and dark areas;
and
means for detecting movement of the pattern to determine a position of the pattern.

23. An optical grating comprising:
alternating light areas and dark areas for modulating a beam of light; and
wherein the light areas comprise a first plurality of contiguously adjacent light areas and a plurality of second light areas, wherein the contiguously adjacent first light areas and the second light areas are substantially uniformly spaced and wherein the contiguously adjacent first light areas are optically different from the second light areas.

24. The optical grating of claim 23 wherein the dark areas are of substantially identical width.

25. The optical grating of claim 23 wherein the contiguously adjacent first light areas are shorter than the second light areas.

26. The optical grating of claim 23 wherein the contiguously adjacent first light areas are shorter than the second light areas and are of gradually changing height.

27. The optical grating of claim 23 wherein the contiguously adjacent first light areas are taller than the second light areas.

28. The optical grating of claim 23 wherein the contiguously adjacent first light areas are taller than the second light areas and are of gradually changing height.

29. The optical grating of claim 23 wherein the second light areas are of substantially identical lightness.

30. The optical grating of claim 23 wherein the contiguously adjacent first light areas are darker than the second light areas.

31. The optical grating of claim 23 wherein the contiguously adjacent first light areas are lighter than the second light areas.

32. The optical grating of claim 23 wherein the contiguously adjacent first light areas are less transmissive than the second light areas.

33. The optical grating of claim 23 wherein the contiguously adjacent first light areas are more transmissive than the second light areas.

34. The optical grating of claim 23 wherein the contiguously adjacent first light areas are optically different from the second light areas.

35. The optical grating of claim 23 wherein the light areas include non-linear sides.

36. The optical grating of claim 23 wherein the plurality of second light areas are disposed on both sides of the contiguously adjacent first light areas.

37. An optical grating comprising:
alternating light areas and dark areas for modulating a beam of light, wherein the dark areas include non-linear sides; and
wherein the light areas comprise a first plurality of contiguously adjacent light areas and a plurality of second light areas, wherein the contiguously adjacent first light areas and the second light areas are substantially uniformly spaced and wherein the contiguously adjacent first light areas are transmissively different from the second light areas.

38. The optical encoder of claim 37 wherein the dark areas are of substantially identical width.

39. The optical encoder of claim 37 wherein the second light areas are of substantially identical lightness.

40. The optical encoder of claim 37 wherein the contiguously adjacent first light areas are darker than the second light areas.

41. The optical encoder of claim 37 wherein the contiguously adjacent first light areas are lighter than the second light areas.

42. The optical encoder of claim 37 wherein the contiguously adjacent first light areas are less transmissive than the second light areas.

43. The optical encoder of claim 37 wherein the contiguously adjacent first light areas are more transmissive than the second light areas.

44. An optical grating comprising:
alternating light areas and dark areas for modulating a beam of light; and

wherein the light areas comprise a first light area and a plurality of second light areas, wherein the first light area and the second light areas are substantially uniformly spaced and wherein the first light area is optically different from the second light areas.

45. The optical grating of claim 44 wherein the dark areas are of substantially identical width.

46. The optical grating of claim 44 wherein the first light area is shorter than the second light areas.

47. The optical grating of claim 44 wherein the first light area is taller than the second light areas.

48. The optical grating of claim 44 wherein the second light areas are of substantially identical lightness.

49. The optical grating of claim 44 wherein the first light area is darker than the second light areas.

50. The optical grating of claim 44 wherein the first light area is lighter than the second light areas.

51. The optical grating of claim 44 wherein the first light area is less transmissive than the second light areas.

52. The optical grating of claim 44 wherein the first light area is more transmissive than the second light areas.

53. The optical grating of claim 44 wherein the light areas include non-linear sides.

54. The optical grating of claim 44 wherein the plurality of second light areas are disposed on both sides of the contiguously adjacent first light areas.